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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,199	10/13/2005	Koji Tokuda	279096US3PCT	1253
22850	7590	07/10/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
YANG, JIE				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
07/10/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/553,199

**Applicant(s)**

TOKUDA ET AL.

**Examiner**

JIE YANG

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 April 2009.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 15 and 16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-5, 7, 8, 15 and 16 is/are rejected.  
7) ☒ Claim(s) 6 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-85/86)  
Paper No(s)/Mail Date no mailing room date  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Inventor's Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/17/2009 has been entered.

### ***Information Disclosure Statement***

The document 10/553,199 in the IDS filed on 10/31/2008 has been crossed out because it is the instant application.

### ***Status of the Claims***

Claims 5-8 have been amended; claims 9-14 have been cancelled; claim 16 is added as new claim; and claim 1-8, 15, and 16 remain for examination.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7, 8, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamikawa et al (US 6,413,471 B1, thereafter US'471).

US'471 is applied to claims 1-5, 7, 8, and 15 for the same reason as recited in the previous office actions marked 10/17/2008.

Regarding the newly added limitation of flow rate controlling partitions in the instant claim 5, US'471 teaches air flow controlling partitions (Col.3, line 38 to Col.4. line 33 of US'471).

Regarding the step of controlling the flow of the furnace gas in the direction of the movement of the hearth as recited in the instant claims 7 and 8, US'471 teaches using partition plates to regulate the pressure inside the furnace in order to increase the operation efficiency (Col.8, lines 24-35 of US'471). It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the partition plates as demonstrated in US'471 to control the gas pressure in different portions of the furnace, which includes allowing the flow the furnace gas in the direction of the movement of the hearth.

Regarding the new claim 16, US'471 teaches a process for producing reduced iron in a rotary hearth furnace (Abstract, col.1, lines 6-12 of US'471). US'471 teaches mixing an iron ore powder, a coal powder, a fluxstone (limestone) powder, and a binder to form reduced iron compacts, which reads on the feedstock containing a carbonaceous reductant and an iron oxide-containing material as recited in the instant claims. US'471 teaches feeding, high temperature atmosphere (in which heating/reducing, melting steps are performed), and discharge portion (in which cooling, and discharging steps are performed) (Col.1, lines 13-23, and Col.2, line 47 to col.3, line 3 of US'471), which reads on the claimed process steps as recited in the instant claims. US'471 teaches air flow controlling partitions (Col.3, line 38 to Col.4. line 33 of US'471), which reads on flow rate-controlling partitions as recited in the instant claims. Because controlling the gas pressure in different portions of the furnace as taught by US'471 includes allowing the flow the furnace gas in the direction of the movement of the hearth and prevent oxidizing gas, therefore, claim 16 is unpatentable over US'471.

***Allowable Subject Matter***

Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art US'471 does not specify the limitation of "...controlling the flow of the furnace gas to allow the furnace gas to flow in the direction of the movement of the hearth by varying a size of the aperture of the one or more perforations" as recited in the instant claim.

### ***Response to Arguments***

Applicant's arguments see "applicant arguments/remarks", filed on 4/17/2009, with respect to objection to the rejections for claims 1-5, 7, 8, 15, and 16 have been fully considered and are not persuasive. Regarding the arguments related to the amended features, the Examiner's position is stated as above.

Applicant's arguments are summarized as follows:

1, Regarding Kamikawa et al (US'471), it teaches away from allowing the flow of the furnace gas in the direction of the movement of the hearth because it teaches that the partition plates would be modified to increase the blocking or suppressing of air flow in order to increase the operation efficiency.

2, Regarding Kamikawa et al (US'471), it teaches away from maintaining a higher pressure in one of the furnace zones since such a pressure difference will promote the flow of gas past the partition plates, i.e. the desired suppression of the gas flow will be impaired.

Responses are as follows:

Regarding the arguments 1-2, the Examiner disagrees with the Applicant argument because US'471 teaches using partition plates to regulate the pressure inside the furnace in order to increase the operation efficiency (Col.8, lines 24-35 of US'471). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the partition plates as demonstrated in US'471 to control the gas pressure in different portions of the furnace, which also includes allowing the flow the furnace gas in the direction of the movement of the hearth.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY

/Roy King/  
Supervisory Patent Examiner, Art Unit 1793